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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE THE APPLICATION OF:

McGee et al.

Grp. Art. Unit: 3747

Application No: 10/602,746

Examiner: Solis, Erick R.

Filing Date: June 24, 2003

Date: February 22, 2004

SPLIT MODE OPERATION FOR  
FUEL INJECTION SYSTEMS

Atty. Dkt. No: 02-580

RESPONSE TO OFFICE ACTION

In response to the Office Action dated December 28, 2004, please consider the following remarks. Reconsideration of the present application is respectfully requested.

Claims 1-5, 8, 10 and 13-17 stand rejected under 35 USC §102(b) over Yang (US 6,390,054). Applicants respectfully disagree since the MPEP and relevant case law require that a reference disclose within the four corners of the document exactly what an Applicant has claimed in order to support a §102 rejection. In this case, even the Office Action admits that the cited reference is silent as to how fuel is supplied to the Yang combustion chambers, and the Office Action acknowledges that this missing information may be found in another reference (Yang US 6,295,973). Because it took at least two references to identify all the features of Applicants' claimed invention, Applicants respectfully request that the outstanding §102(b) rejections be withdrawn.

Applicants also take issue with the assertion in the Office Action that Yang '973 teaches fuel injection. While it is true that Yang '973 contemplates fuel injection in his background section that was cited in the Office Action, neither of the cited Yang references teach fuel injection. Disclosing is not teaching. In other words, both references teach premixing air and fuel in the intake manifold before supplying the same to the individual combustion chambers. As for what is discussed in the Yang '973 background section, Applicants readily concede that those with ordinary skill in the art recognize that HCCI Engine operation can be accomplished either through premixing in the intake manifold or by direct injection into the engine cylinder early in the compression stroke. Applicants also note, however, that no reference of record, nor

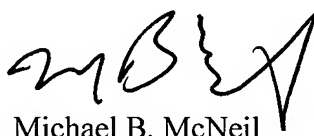
I certify that this paper or fee was mailed with sufficient postage via first class mail on the 22nd day of February, 2005 to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450; Name Printed : Carrie Strenning; Signature Carrie Strenning

is any believed available, that teach direct injection HCCI operation via multiple injection shots. Thus, Applicants respectfully assert that when the cited references are read in their most favorable light, Applicants' claims directed to multiple injections in a single engine cycle clearly fall outside the realm of any previously taught HCCI direct injection strategy. Thus, Applicants' claims that include injecting two or more injection shots in a single engine cycle ought to be patentable over any fair combination of the cited references of record.

Claim 6, 7, 9, 11, 12 and 18-20 stand rejected under 35 USC §103(a) over Yang '054. There should be no dispute that a carbureted engine as taught by Yang is different from a direct fuel injection engine. Thus, Applicants respectfully assert that teaching transitioning from a HCCI mode of operation to a conventional spark ignition mode of operation in a carbureted engine as in Yang would not teach one with ordinary skill in the art how to transition between engine modes in a direct injection engine, especially where the number of shots being supplied to the combustion space is different in each modes of operation. There should be no dispute that transitioning an engine, such as Yang's, between an HCCI mode of operation and a conventional mode of operation relates heavily to adjusting intake and exhaust valve timings, which is completely different than fuel injection timings and quantities in a direct injection engine. Therefore, Applicants respectfully request that all of the outstanding §102 and §103 rejections be withdrawn. In the alternative, Applicants respectfully request that a new Office Action be issued that is free of any §102 rejections.

This application is believed to be in condition for allowance of claims 1-20. However, if the Examiner believes that some minor additional clarification would put this application in even better condition for allowance, the Examiner is invited to contact the undersigned attorney at (812) 333-5355 in order to hasten the prosecution of this application.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read 'MB McNeil', with a stylized flourish at the end.

Michael B. McNeil  
Reg. No. 35,949